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EDMUND RACK.

FOUNDER OF THE BATH AND WEST OF ENGLAND SOCIETY.

FROM A PORTRAIT IN THE POSSESSION OF THE COUNCIL.

1777.

A
CENTURY
OF
AGRICULTURAL
PROGRESS,

*BEING ONE HUNDRED YEARS' HISTORY OF THE BATH
AND WEST OF ENGLAND SOCIETY, FROM ITS BIRTH
IN 1777 TO ITS CENTENARY IN 1877.*

BY THE EDITOR OF "THE BATH HERALD."



BATH:
WILLIAM LEWIS, "THE HERALD" OFFICE.
1879.
w.

THIS
UNPRETENDING HISTORY OF
AGRICULTURAL PROGRESS
DURING THE CENTURY OF EXISTENCE
OF THE
BATH AND WEST OF ENGLAND
AGRICULTURAL SOCIETY
IS RESPECTFULLY
DEDICATED TO THE COUNCIL
BY THEIR
OBLIGED AND FAITHFUL SERVANT,
WILLIAM LEWIS.

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PREFACE.

The History of the Bath and West of England Society contained in the following pages was written for and appeared in THE BATH HERALD during the holding of the Centenary Meeting in Bath in 1877. As the operations of the Society disclosed "A Century of Agricultural Progress" it was thought that the narrative possessed sufficient value to warrant its republication in a more permanent and handy form; for this purpose it has been carefully revised and considerably enlarged, and it is hoped that it will now prove not only of more general interest, but, while attesting to the great strides agriculture has made and the important services rendered to it by the Bath and West of England Society, will tend also to promote the success and prosperity of this venerable and vigorous institution.

Bath; April 14th, 1879.

A CENTURY OF AGRICULTURAL PROGRESS.

I will go root away
The noisome weeds which, without profit, suck
The soil's fertility.

Shakespeare.



HERE is no department, either of Trade or Commerce, that has not been benefited by the application of science to mechanical and industrial pursuits. Indeed, so vast have been the changes effected by its instrumentality that science has been called by its more fervid apostles the latter day "revelation," and accepted by them as a new creed, which ought without more ado to supersede the old. It is not necessary however to be numbered among the votaries of this new form of idolatry to have a keen appreciation of the advantages the world has derived from the discoveries under considera-

tion. Turn where we may evidence of this fact confronts us, and not the least striking of the proofs are to be found in the domain of Agriculture. To enumerate all or even the more important of the changes which have been wrought by the aid of this new power in farming operations alone would require not a modest work like that now presented to the reader, but a ponderous volume, to which additions would have constantly to be made through the unceasing triumphs of human ingenuity. A general idea nevertheless may, we think, be gained of the progress made since science began to play the important part it has done and is doing, by a general review of the operations of the Bath and West of England Agricultural Association. One of the oldest Societies of the kind existing in England or the world, it has, during the hundred years that have elapsed since it was founded, not only witnessed, but taken an active and liberal part in promoting and encouraging that improvement in agriculture which has tended to increase enormously the wealth of the country, and to add in a corresponding degree to the comfort of the people.

As all well know it is given to few institutions, formed for purposes analogous to those which this Society was intended to promote, to contend without succumbing to the vicissitudes which the ever varying conditions of society create, and the competition which the love of novelty and experiment is always ready to encourage. The Bath and West of England

Agricultural Society presents nevertheless the gratifying spectacle of an organisation acquiring vigour with the weight of years, and fulfilling, after the lapse of a century, more effectively the objects which its founders had in view than at any other period of its existence. High as was their aim, and sanguine as we doubt not were their expectations, they could never, not even under the most fervid inspiration of hope, have realised the possibilities which lay potential in the scheme they with so much thought and labour inaugurated. Though believing in the necessity of improving the agricultural and manufacturing skill of the nation, they probably looked around, as we are inclined to do, with a self-satisfied air on the enlightened age in which it was their happiness to live, and cast (as we do upon them) a compassionate eye at bygone generations who had the misfortune to live under less favourable conditions, just as we a century hence may have the like commiseration bestowed upon us, not unmingled with wonder perhaps that we found life supportable in the absence of so many essentials to which science and art may have given birth in the interval. Still, under encouragement, such as the young Society proposed to supply, they thought the land might be made more productive by better tillage, stock improved by more care in breeding, manufactures developed by stimulating scientific experiment, and art generally carried to a higher pitch of excellence by facilitating its pursuit and making it more profitable.

- All this in their opinion could be evolved out of the social circumstances with which they were surrounded. They knew nothing of the revolution which steam (as applied to manufactures and locomotion), the electric telegraph and education, were destined to achieve ; and yet in spite of the vastness of the change wrought through the instrumentality of these agencies, the Society which they started is found to be as serviceable, at least, to modern England as it was to the antiquated England of their day. What greater tribute can be paid to the wisdom of Edmund Rack and his associates than this adaptability of their Society to political and social conditions so entirely different from those current at the time of its conception ? The primary industries which they were desirous of fostering have in truth attained a degree of perfection which was never dreamt of in their philosophy. Familiar only with the old and cumbrous modes of husbandry, what would they think of our steam ploughs, reaping and thrashing machines, mowers, and the hundred and one mechanical aids which science has placed in the hands of the farmer ? of stock so choice that bulls and cows fetch now and then over a thousand guineas ? of the knowledge of the constituents of soils which chemistry has revealed, as well as the fertilising properties of artificial manures, which is now considered so necessary to the farmer ?

Yet these results, wonderful as they are, are the

product of the period embraced within the Society's career of activity. Here and there (*pace* Mr. Thoms!) lives perchance some venerable relic of humanity whose age, equal to that of the Association, enables him to speak from personal experience of the rough, illiterate agriculturist of a bygone generation, and of his educated, science-aided successor of the present day, and who yet lingers on like a frail bridge spanning the chasm of time separating two such widely different epochs. Without professing to have found any one of these human bridges to conduct us across this interesting gulf, we may just perhaps preface our history of the Society by taking a hurried glance at

England a Hundred Years Ago.

At that period George the Third was engaged with his proverbial obstinacy in two ill-judged enterprises—the usurpation of despotic authority and the subjugation of the American Colonists. Lord North, the Prime Minister, was supported by an obsequious majority; and the eloquence of Burke and Fox was poured forth in vain in behalf of a conciliatory policy towards the revolted American provinces. Conciliation was odious to the King, and the news brought across the Atlantic by the old three-deckers, or the lighter craft of the privateers returning with plunder from the Spanish main, seemed disastrous to the rebels, and made his

Majesty immovable as a rock. Chatham, worn out by age and disease, was in retirement, from which he was soon to emerge, only to have the embers of his once fiery genius quenched for ever by the cold hand of death. His son had not yet obtained a seat in the House of Commons, neither had Sheridan, though both were destined shortly to enter its portals and to obtain therein imperishable fame. "Who is Junius?" was a question that the curious of the day were trying to solve, but with no better success than subsequent investigators fascinated by the mystery of this incisive but bitter writer in the iron mask, whose declaration that his secret should perish with him was no vain boast; it is a secret still, even though Lord E. Fitzmaurice has given us a life of his eminent ancestor, Lord Shelburne, who is supposed to have known more than anyone else about this much-discussed topic. Mingled with speculations respecting the identity of this great master of irony, whose letters against the King and his minions breathed a spirit that was leavening the popular sentiment, were fears and congratulations over the successes of Warren Hastings, who by force and fraud was laying the foundations of our Eastern Empire, over which her Majesty the Queen now rules as Empress.

Nor, we may be sure, was Captain Cook forgotten, for the enterprising and successful navigator had recently started on his expedition to discover the north-west passage, but was doomed to find instead a premature

grave on the distant shores of Otaheite. Of Australia, which now fills so large a space upon the map, only glimpses had been obtained, and of so little worth was it considered that it was about to be converted into a convict establishment. No doubt the Draconian laws then prevailing rendered necessary a somewhat large penal settlement, more particularly as the War of Independence prevented the transportation of law breakers by the shipload to the American plantations. Death was the common punishment for crime, great and small, from the man who murdered in cold blood to the lad who stole a few shillings from the pocket. Horse-stealing, forgery, sheep-stealing, burglary and a host of other misdeeds were all capital offences ; but about one half of the culprits, by the clemency of the judges, were sent for the remainder of their lives—and short they were—to the plantations. The large discretionary power vested in the judges led to anomalies which at this distance of time it is difficult to reconcile. Reporting the assize intelligence of that period a newspaper announces laconically—"A horse stealer was sentenced to be hanged, and a man for killing his wife ordered to be branded in the hand and imprisoned for six months."

A faint consciousness that the criminal code might be relaxed without danger to the common weal had however just been exemplified ; the law was abolished under which when a felon refused to plead he was stretched out upon his back at full length and a heavy

weight laid upon his breast which was gradually increased till he expired. Of a piece with this legislation was the Act still in force, which prevented the poor from settling in any other place than the one where they had previously lived ; also the practice of selling slaves in England, and of the neglect of education which made the mass of the people as ignorant as they were brutal. The want of sanitary knowledge likewise was no less destructive physically than the absence of education was morally. It was not uncommon for cities and parishes to be devastated by fever and small-pox, and parochial records tell us that a pest house was provided for patients who were frequently stricken when at work in the fields and were conveyed thither, and thence to the churchyard almost invariably.

There is nevertheless a bright side to the picture : uncongenial as was the soil, literature, art and science flourished. Gibbon was just receiving the felicitations of the learned on the appearance of the first volume of his great history, whose stately diction and grasp of facts have secured for it a permanent place in English classics ; Johnson was still vigorous with his pen as he was dogmatic with his tongue, and was preparing his "Lives of the Poets," the most likely of his works to give vitality to his fame ; Robertson was busy compiling those voluminous histories which yet find a place in the library ; Gilbert White was absorbed in the observation of nature, animate and inanimate, and in

writing those letters whose store of information and unsophisticated charm retain all the freshness of recently plucked flowers. In passing, we may note that under the date May 20, 1777, he tells us that Farmer Young, of Norton Farm, had about four acres of his wheat in one field entirely destroyed by slugs, which swarmed on the blades of corn and devoured it as fast as it sprang; and so good Gilbert throws out sundry hints on the subject of slugs and worms, "in order to set the "inquisitive and discerning to work." As history so often repeats itself, it would be well to know whether any Farmer Young has this spring suffered from a similar plague of slugs. The same year is memorable in dramatic literature for the production of the "School for Scandal," Sheridan's masterpiece and the most sparkling of comedies; little Fanny Burney was conning in secret the MSS. of her "Evelina," which was so soon to waft her into popularity and Court favour; Beckford was publishing his first work, "Biographical Memoirs of Master Painters;" and Cowper was becoming conscious of the "divine afflatus," though as yet it had found expression only in fugitive pieces.

At the same time the English school of painting was founded and carried to a high state of perfection, for Reynolds and Gainsborough then flourished, with Romney, Wilson, Opie, Lawrence and other famed brothers of the brush. In science the elder Herschel was busy exploring the heavens and widening the bounds

of astronomy ; Priestley was conducting those investigations of fluids and gases which proved the harbinger of Modern Chemistry ; Wedgwood was infusing the spirit of Greek art into English pottery, and, by the way, held an exhibition of his "Queen's ware" in Bath this very year ; Hargreaves, Crompton and Watt were divulging mechanical discoveries, upon which the manufacturing supremacy of the kingdom in the department of textile fabrics is based ; and Adam Smith was laying upon a sure foundation the science of political economy in his great work on the "Wealth of Nations." Thus we see that the period, chequered as were its aspects, was a memorable one—a period indeed pregnant with influences the effects of which have been felt throughout the world, and to which time, it may be, will set no bounds. Nor less marked are the beneficial results which followed from the efforts then made to improve that which has special interest for us at the present time, viz.,

Agriculture.

A century ago farming was in a very backward state, particularly in the western counties. The implements employed were limited in number and simple in construction. The agriculturist was guided in his operations by custom, or by such modifications of it as observation and experience might suggest. Societies for his aid and encouragement had not yet extended to him their

helping hand. He ploughed and he sowed after a primitive fashion ; knowing little of the advantages of manures, his crops were as a rule small and the quality of the grain inferior. More likely than not, he thrashed his corn after combing the sheaves with a hand comb and cutting off the heads with a common knife. His land for a great part of the year lay fallow because he did not understand the rotation of crops. With swede, turnips, or mangold wurtzel he had not become acquainted, and his cattle was rawboned and ungainly, for not only was the food inadequate, but the art of cross-breeding was unknown. He tried with some success to improve his sheep, because a good market could always be commanded for the wool, then the chief product of the country. The only thing was whether he would be able to reach the market, as the roads were so bad as to be often impassable during part of the year. When the quagmires and other impediments compelled a return without reaching his destination, the pecuniary loss was not the only one sustained ; the whole family, labourers included, were deprived of the little knowledge they could acquire of what was going on in the great world around them. A news letter from "Lunnon" might reach the 'squire at intervals and some of its contents ooze out, or the young 'squire might have escaped all the perils of a journey to and from the metropolis and brought intelligence direct from the coffee houses ; but his budget of gossip excited less

interest than he himself as the hero who had accomplished a formidable undertaking.

The farmer was illiterate, and "maister's" son, who knew the three "R's," received the distinguishing appellation of "the scholar" of the family. While the male members, with the aid of a labourer or two, cultivated the soil, the wife and daughters did all the household work and attended to the dairy besides. They also spun the wool from the black sheep (reserved specially for the purpose), and the arrival of some wandering tailor was awaited to make it into Sunday clothes. Leather breeches were worn at home and abroad, and when put on after being wetted and dried, severe was the punishment the stiffened wrinkles inflicted on the unfortunate wearer, if he had to follow the plough or engage in some other manual occupation.

The labourers were barely one remove from the cattle they tended ; their pay was about 6d. a day, which was supplemented by a gift of milk from the dame, who, if well pleased, would thrust occasionally into the can a knob of butter. Fresh meat was a luxury rarely enjoyed, but low as were his wages, Hodge managed to get salt meat (mutton and beef, as well as bacon, being cured when oxen or sheep were slaughtered in the village), and this with bread and beer or cider formed the bulk of his diet. If he lived to be old, he as a matter of course came upon the parish, and the parish discharged its obligation by quartering him upon the farmer ; once a year there was

in some places this kind of distribution of the male paupers by the churchwardens and overseers, those who received them taking care to get as much labour as possible out of the poor broken-down creatures.

We know how completely this state of things has been revolutionised ; how vast has been the improvement in all branches of agriculture with a corresponding growth in the education and intelligence of the farmer, and in the condition of the labourer. This gratifying result is mainly due to the application of science to husbandry, and for this application we are indebted to the agricultural associations established within the last century.

Neither should we forget the stimulating effect upon farming operations which the travels and writings of Arthur Young produced. It is said that between 1766 and 1775 he realised £3,000 by his literary productions. In 1784 he commenced a periodical work under the title of *Annals of Agriculture*, which he continued through forty-five volumes. All the contributions were signed by their authors, a rule which he however relaxed in the case of the king, George III., who forwarded to the seventh volume a description of the farm of Mr. Duckett, at Petersham, under the signature of Ralph Robinson, of Windsor. Such was the fame of Young abroad as well as at home that the Empress Catherine sent three young Russians to be instructed by him, and made him the present of a gold snuff box with

rich ermine cloaks for his wife and daughter. In 1805 his son was employed by Czar Alexander to make an agricultural survey around Moscow, and was rewarded with a sum which enabled him to purchase an estate of 10,000 acres of fertile land in the Crimea, where he settled. Pupils flocked to Arthur Young from all parts of the world. The Duke of Bedford at his breakfast-table one morning counted representatives from France, Poland, Austria, Russia, Italy, Portugal and America.

During the ten years preceding 1777 small societies had been established in different parts of the kingdom for the encouragement of agriculture; the practice seems to have been to give silver medals, as in the case of the Agricultural Society for the Hundred of Salford, which as early as 1768 gave this description of prizes for the best crop of wheat, the best cow calf, best crop of barley, and for draining the greatest quantity of land. These records are interesting as showing the direction in which improvement was most sought at this early period in the northern part of the country. In the west, nothing of the kind was attempted until 1777, and for the beginning then made the district is indebted to Edmund Rack, a Norfolk gentleman by birth, but who at the time resided in Bath. Here he founded the Bath and West of England Society, not as is sometimes stated upon a new plan, but in accordance with that followed by similar institutions then existing in Norwich, Manchester and elsewhere.

Society in 1777.

A more unlikely progenitor of a successful Agricultural Society could hardly be conceived than the city of Bath at the period under consideration. The butterfly-kind of existence led by the rank and fashion that haunted it, left it may have been supposed no time or care for serious business. A fresh novelty in dress or pleasure would be much more sure of favour than a proposal to improve the cultivation of the land or the breed of cattle ; but Rack's success shows how erroneous was this inference, which the centenary meeting placed in a very vivid light.

Bath at that time was very different in appearance to what it is now ; the distinction between the upper and lower town was strongly marked. Houses encrusted the Abbey Church, and crowded upon the old Pump House, the approach to which was by narrow avenues. The Bear Inn connected Cheap street and Westgate street, and its yard and stables covered the site of Union street. Venerable-looking gabled houses contributed to the irregularity of High street, from the centre of which the old Guildhall had just been removed. The whole of Bathwick was smiling green fields, building not having yet commenced thereon. The Crescent, Circus, and other streets, with the Assembly Rooms, still bore the pale hue which characterises Bath oolite when fresh from the quarry ; the Guildhall was in the

hands of the builder, and the Cross Bath was just completed from the designs of the younger Wood.

The Pump Room was thronged in the morning by gay, chatty groups, before perhaps adjourning to Spring Gardens over the river, where a public breakfast took place "every Monday and Thursday attended with "French horns and clarionets, likewise proper music for "dancing cotillions, &c. Tickets 1s. 6d. each ; private "breakfasts without music 1s." The same announcement from which we are quoting informs us that "Spring Garden cakes and rolls are ready every morning from early after nine," and that the distance from the Pump Room was 472 yards as lately measured—6d. fare.

Another glimpse at the manners, customs and dress of the day is furnished by sundry modifications issued about the same time. Beau Nash's successor in the office of M.C. gives this warning—"Servants, hairdressers and "other improper persons who every night occupy some "of the best seats on Ball Nights, and even presume to "mix with the company, are warned to keep away and "so spare themselves the mortification of being desired "to withdraw, a circumstance which will inevitably "happen if they continue to intrude themselves where "decency, propriety and decorum forbid their entrance !" Subjoined is one of several dressing decrees which the Master of the Ceremonies was compelled to issue to bring the fair sex to a due sense of propriety in the

matter of costume. "Ladies who choose to dance minuets at the dress balls" are reminded that a suit of "cloathes or a full-trimmed negliges, with lappets and hoops, are the only dresses proper for the occasion ; that all other fancy dresses, such as polonèse, French nightgowns, &c., however elegant, are not sufficient dresses and are highly improper to be worn with lappets." Ladies are also forbidden to wear hats of any kind in the public rooms on ball or concert nights or on any evening until after the 1st May, "as it would be utterly impossible to preserve any propriety in dress if the rules of this assembly were to vary with every trifling alteration of fashion in London. The ladies are also requested to observe that *no apron of any sort* can be admitted to the Balls on Mondays." The gentlemen were as prone to indulge in latitudinarian views with regard to their attire as the ladies, and the like specific directions were issued for their guidance. "Fancy dresses, with slash sleeve or jacket, turn-down cape," &c., are forbidden, the only dress proper for a minuet being "a suit of full-trimmed cloaths with their hair or wig dressed in a bag." A dress suit of superfine cloth cost £5, and a plain ditto £4 10s., according to the circular of a fashionable tailor of the day.

The cloth trade still flourished in Bath, but the members of the ancient craft were not, we fear, in good repute if the addendum to the following advertisement has any meaning. "The overseers of the parish of S.

“James have several smart, healthy boys and girls from
“10 to 14 years of age to put out as apprentices, decently
“attired, and with the usual parish fees. *No cloth*
“*workers need apply!*”

As we have mentioned the price of apparel, it will furnish additional materials for comparison if we add that horses fetched £4 and £5 apiece; that wheat was selling here at from 34s. to 48s. per qr.; barley, 17s. to 21s.; oats, 14s. to 18s.; and beans from 27s. to 30s. The price of bread as officially fixed at the “Assize of bread” was 1s. for 9lbs.; meat was 3d. per lb., and tea ranged from 5s. to 21s. per lb.

Notwithstanding the bad condition of the roads, before alluded to, the Bath “machines” performed the journey to London in one day, starting at four o’clock in the morning. The fare was £1 8s. for adults and 14s. for children. It is significant of the time that the departure and arrival of the machines were not guaranteed; the contract would be fulfilled “if God permit,” a phrase appended to all the coaching announcements then current.

Without going into further details of those “good old times,” we think we have said enough to show the general and local surroundings of the Bath and West of England Agricultural Society at its birth, and a few words are now due respecting

The Founder.

Mr. Edmund Rack was born at Attleborough in the county of Norfolk. He was educated in the religion of his parents, Edmund and Elizabeth Rack, who were both Quakers. We are informed that his father, a labouring weaver, was a man of an excellent character, and that his mother was well known for her preaching, and highly esteemed among her own sect.

Thus humble in his parentage, he had little opportunities of instruction at that early season when the mind is best disposed for receiving it. The knowledge of arithmetic was Mr. Rack's highest attainment, when he was removed to Wymondham, as an apprentice to a general shopkeeper, and though possessing talents that disdained the drudgery of his occupation, he was never heard to repine at the necessary labours attending it. At the close of his apprenticeship he went into Essex, and at Bardfield became a shopman to Miss Agnes Smith, whom he married not long after his residence in that place. Amidst all the inconveniences of his situation, he commenced author before he arrived at the age of thirty. His writings indeed at first but rarely affected a more dignified place than the corner of a newspaper or a magazine, yet his performances were by no means contemptible, especially those which appeared in the "Monthly Ledger" and "Monthly Miscellany," under the title of *Eusebius*. These publications were

followed by a few controversial tracts, which soon however sunk into oblivion. It was about his fortieth year (1775) that he settled at Bath, where, as a man of letters, he found himself not unpleasantly situated. He had just collected into one view his best poetical pieces that had made their appearance on different occasions in periodical pamphlets. These, with several additional poems, he printed in one small volume about the time of his arrival at Bath. His next publication was "Cas-pipina's Letters," in two small pocket volumes, dated Bath, February 28, 1777.

Mr. Rack had not long resided in Bath before he was introduced to some respectable personages among the literati. Mrs. Macaulay, who at that time lived at Alfred house with the Rev. Dr. Wilson, paid him very particular attention, and was known to regard him both as a man of integrity and abilities. About the same time also he became acquainted with Lady Miller. In the latter end of 1777 he published a small tract entitled "Mentor's Letters," the substance of which he had written about four years before, for a few of his younger acquaintances. He was known also as one of the writers for the "Farmer's Magazine;" and in that year he communicated to the public his scheme for the institution of an Agricultural Society. At the commencement of the year 1781 he published an octavo volume of letters, essays and poems by subscription.

The last of Mr. Rack's literary engagements was a

joint share in "The History of the County of Somerset," in which his particular department was the topographical parochial survey. This, notwithstanding his ill state of health, he indefatigably pursued during the successive years of 1782, 1783, 1784, 1785 and 1786, and except a few towns and parishes, lived to finish ; but only a small part of the first volume was printed before his death, which took place at Bath, February 22nd, 1787, in the 52nd year of his age.

Introduction of the Society.

When Mr. Rack came from the east to the west he was struck with the contrast presented, to the discredit of the latter, in the agricultural condition of the two districts. Conceiving that the superiority of Norfolk in this respect was due to the fostering care of an Agricultural Society, he thought such an institution would achieve the same result for the western counties. He developed his plan in a series of letters to the local press, and cogently pointed out that it was to the interest of the farmer, the landowners and the nation at large that the resources of the country in connection with agriculture should be increased. He also showed what had been done in London, Norwich, York and divers other places, to further the object by giving pecuniary and honorary rewards to the "diligent and ingenious who have excelled in the various departments of husbandry, in

“useful manufactures, and in the most curious specimens of art.”

The project met with considerable sympathy, because following upon the letters of Rack came the annexed advertisement :—

AGRICULTURAL SOCIETY.

To the Nobility and Gentry in the Counties of Somerset, Gloucester, Wilts and Dorset in general, and the Cities of Bath and Bristol in particular.

Bath ; Aug. 26, 1777.

A proposition having been made for the institution of a Society in this City for the encouragement of Agriculture, Planting, Manufactures, Commerce and the Fine Arts, the Nobility and Gentry are hereby respectfully informed that a Meeting will be held at York House, on Monday, the 8th of September, at Eleven o'clock in the forenoon, to take the affair under consideration. And that the plans on which Societies of this kind in London, Norwich, Manchester, &c., are founded, with some other necessary particulars, will then and there be produced; in order that a general plan may be formed for establishing a Society here on a proper foundation, and a subscription opened for carrying it on with a spirit becoming the dignity of so honourable an institution, and its great importance to the community.

As this institution is intended for the benefit of all the above-named counties, it is humbly requested that the public-spirited gentlemen residing therein will generally honour it with their countenance and protection.

About 22 gentlemen responded to this invitation, before whom Mr. Rack laid his plan, and they entered so cordially into it that a subscription was then and

there started to cover the unavoidable expenses. Subsequent meetings were held under the presidency of Dr. Falconer, at which a committee was appointed, the post of secretary being accepted by Mr. Rack. At the end of the year the secretary, in a letter couched in terms of modest exultation, announced that he had received the sum of £350 to be distributed in premiums.

The Earl of Ilchester was the first president of the Society, and among its warmest supporters were Mr. J. Billingsley, of Ashwick grove, near Shepton Mallet, and Mr. T. Davis, steward of the Marquis of Bath.

Its Subsequent Proceedings.

The first subject which engaged the attention of the Society was the growing of corn on the best and cheapest method with due regard to economy of seed and sufficiency of yield. The system of *setting* wheat had been commonly practised in Norfolk for some time, and not only were inquiries made as to the method of practising it, but Mr. Thomas Bethell, of Weston, carried off the Society's prize of £10 for setting ten acres, which afforded agriculturists an opportunity of determining whether the practice was worthy of their adoption. From an account of the Society written by the present energetic secretary, Mr. J. Goodwin, we learn that its leading members were so impressed with the importance of practically testing all alleged improvements before

they recommended them to others, that they had not only a sort of experimental farm where trials of various kinds were conducted by unprejudiced and earnest men, but it is an interesting fact—more especially now that agricultural machinery has attained to such marvellous development and excellence—that as early as March, 1788, the exhibition of Blancher's drill plough was announced at the Society's rooms, and the assurance that it had been "tried by the Agricultural Committee "and found to deliver the grain with great exactness "and regularity." Another noteworthy circumstance of the year was the occurrence of a ploughing match, which took place on Barrack's farm, Wells road, near Bath, and which is considered the first competition of the kind in this or any other country.

Among the other objects under investigation at the same time were the rot in sheep, distemper among horned cattle, and the settlement of the question of land exhaustion after constant cropping. The discussion of the latter subject elicited questions and suggestions which foreshadowed some of the results attained at a later date by a chemical analysis of soils. The disease known as the "curl" in potatoes was likewise investigated under the Society's directions, the ravages it was then committing forcing it upon attention, like the potato disease with which the present generation is familiar. We fear it cannot be said that the mystery surrounding the origin of either has been satisfactorily

explained. The same year the Rev. W. Lamport, of Honiton, received a premium of twenty guineas from the Society for an essay on the "Establishment of "Schools of Husbandry for Farmers' Sons."

Unlike some of the other societies, the Bath and West of England offered, in its early years, no premium for the improvement of live stock, the importance of which was only slowly obtaining recognition, but it did not entirely overlook the subject, for in 1783 its journal contained a paper embodying the suggestions of Mr. Benjamin Smith, a noted breeder of cattle and sheep (derived from the Bakewell herd and flocks) for the improvement of West of England stock. Smith recommended that the Devon cattle should be crossed with animals of a different breed and arriving earlier at maturity. He described the Devons as being set high on the legs and therefore weighing very light, though fetching more per lb. than any others at Smithfield market. Ten years however elapsed before Devon stock appeared in the Society's premium list, the reason assigned for the delay being that it belonged to a county outside the pale of the Society's operations. The first prize ever awarded by the Association for the improvement of stock was to Mr. John Young for the best ram.

In 1784 the Earl of Ailesbury succeeded the Earl of Ilchester in the office of president. A variety of subjects engaged the attention of the Society at this period, the most noteworthy being a proposal made by

Dr. Fothergill to appoint a chemical professor to the Society, which we shall find renewed a few years later. Then we have communications from Mr. Arthur Young on various branches of farming economy; a revival of the inquiry commenced in 1778 as to the cultivation of rhubarb for medicinal purposes, with elaborate reports by many of the leading physicians of England and Scotland—a subject that had long engaged the attention of the London Society; the offer of prizes for butter, cheese and general dairy management; an inquiry into the causes of gaol fever, and the best system of prison discipline; an account of Sir T. Beevor's Suffolk breed of cows; two remarkable papers by Mr. Wimpey on the laws of vegetation; and various other matters of special interest at the time. The increased attention now paid to an improved class of agricultural implements also deserves notice. In 1785 the Society examined and expressed its approval of Winlaw's mill for separating the grain from the ears of corn, in place of thrashing. One great obstacle to the more general use of improved implements was the disinclination of farm servants to adapt themselves to the change which was beginning to influence the whole system of industrial occupation in England. Mr. Billingsley, writing on this subject, observes:—"Vigorous attempts have been made by the Bath Society to introduce the Norfolk and other ploughs, calculated not only to expedite the work, but to render it less expensive, and their endeavours have

“been attended with no inconsiderable degree of success ;
“yet I may say that not one farmer in 500 has followed
“the example, though many of them daily receive
“ocular demonstration of the inferiority of their own
“ill-constructed ploughs. To what can this blindness
“and obstinacy be owing? The farmers are quick-
“sighted enough in most other matters wherein their
“interest is concerned. I am therefore inclined to think
“the fault lies more with the ploughman than the
“master, whose indolence induces him rather to accom-
“modate the plough to the man, than to exert himself in
“making the man accommodate himself to the plough.”
It was in consequence of this representation that the
Society offered a premium to those ploughmen who
most readily adopted and most properly used the
Norfolk plough, and among the prizes awarded was one
to the Earl of Pembroke, for ploughing 500 acres with
the Norfolk plough, drawn by two horses, and another
to Mr. Nagg’s ploughman, for “great diligence in using
“and promoting the use of the same implement.”

The Merino Sheep Controversy.

A subject which occupied a prominent place in the
efforts of the Society for the greater part of a quarter of
a century, was the improvement of wool, particularly in
connection with the Spanish breed known as the merino.
Its history forms not only an instructive episode in the
proceedings of the Association, but is especially interest-

ing to Bath, for in no part of the country were greater exertions made to naturalise the merino. Loyalty perhaps had not a little to do with the persistency with which the undertaking was prosecuted. George III. was the first to embark in the project, his object being to make England, in this respect at least, independent of the foreigner. From 1787 his Majesty embraced every favourable opportunity of procuring the merino or fine-woolled sort from the Peninsula, the rams being selected for him by the Marchioness del Campo. He hoped in this way to lessen the large sums that were then sent out of the country for the purchase of this wool, without which fine broadcloth could not be made. The several lots of sheep thus imported were distributed as they arrived in this country among the noblemen and others concerned in breeding sheep, the Bath and West of England being among the recipients of a ram. The scheme was however ridiculed, and was likely to collapse from want of sympathy and co-operation on the part of those whom the king wished to interest in the undertaking. Annoyed at the prospect of failure, his Majesty turned breeder himself, in order to demonstrate the practicability of obtaining wool in England as fine as the merino, and "Farmer George" had in a few years the satisfaction of finding his annual sale of sheep attracting general attention.

However sceptical others may have been several members of the Society seconded the efforts of the king

with great ardour, among them being Lord Somerville, Dr. Parry, of Summerhill house, Bath, also Mr. Bartley, for some time secretary to the Society, and who was as trenchant a writer as he was a skilful breeder. Prizes were offered by the Society for the finest wool of home growth, and in 1795 Dr. Parry is among the successful competitors. His name appears again in 1801 in conjunction with the Duke of Bedford, both of whom received premiums for different samples of broadcloth and kerseymere made from British wool, the growth of their own improved flocks; "in quality," we are told, "it is scarcely to be perceived from the "finest Spanish." The year before the king appeared in a dress wholly made from cloth manufactured from British wool, and his Majesty's example was followed at intervals by various members of the Society, who hoped by this means to encourage native industry and at the same time to protect the cloth trade of the west from the ruin then foreshadowed. Dr. Parry also received the gold medal of the Royal Society for a pamphlet on merino sheep, and the king accepted from him with many compliments a piece of fine cloth woven from the wool of the Summerhill flock.

In 1803 the most noteworthy fact appears to have been an "important communication from Lord Somerville on the subject of British wool with especial reference to the new flocks." The next year it is announced that the pieces of broadcloth from merino wool were

much more numerous than on any former occasion, the premiums being secured by Lord Somerville, Dr. Parry, Mr. Bartley and Mr. W. H. Yates. The enthusiasm for the merino continued unabated.

In 1805, Mr. Bartley had a thousand pounds of wool for sale, and in 1807 the Society established in its exhibition yard a wool mart. At the same time the members patriotically resolved to appear at the next public meeting in cloth made solely from British fleeces. Later on the Prince of Wales and the Duke of Clarence are recorded as accepting cloth from Dr. Parry of the produce of his own flocks. Indeed it appeared as if the advocates of the merino had won the day, in spite of the opposition they had to encounter.

A clergyman writing from Reigate in September, 1810, says:—We hear of no difference now either in price or quality between merino wool grown in this country and that imported from Spain or Saxony. The manufacturer finds the former equally suitable to his purpose with the latter. The crosses upon our English breeds with the merino have been to the full as successful and profitable as was at first prophesied by our most sanguine speculators. The thoroughly crossed Anglomero wool—witness Dr. Parry's flock, the largest, perhaps, of the kind in Europe—has succeeded so entirely that the cloth of its manufacture has equalled, and sometimes proved superior to any broad cloths which England could produce.

Notwithstanding these positive assurances and the liberal bounties offered from year to year by the Society, the merino never took kindly to the country. The son of Dr. Parry continued to breed the stock at Summerhill, and to carry off prizes for the wool, but the fates or rather the climate was against him.

During the depression which followed on the close of the great war and from which the agricultural interest suffered, the farmers and many of their friends looked back regretfully to the period when the woollen industry was the foremost of the kingdom, and as the country was prosperous then, they inferred apparently that it was only necessary to revive the old trade and the national prosperity would return with it.

In this spirit Dr. Parry, the younger, addressed in 1822 a letter to the President of the Association on the growth of prize wool in this country, accompanied by some fleeces and a piece of cloth. He likewise offered to compete the next year with any grower of wool in the kingdom and with any manufacturer of cloth from foreign wool. When the time came he had to express his regret and disappointment at not being able to forward "the fine specimen of cloth" made from merino wool, owing to its having been stolen.

The following year it is duly notified that "Dr. Parry exhibited a piece of navy blue cloth, made from the wool of the Merino-Ryeland stock," which was much admired.

The efforts of the Doctor to revive the staple trade of the country was at this time warmly seconded by Mr. G. W. Hall, who appeared at the meeting in 1827 in a suit of clothes produced from wool grown upon his own farm.

The following year Mr. Hall complained bitterly of the little attention paid by English farmers to the production of fleeces, and declared that if the same apathy were exhibited in the future, he should propose that premiums be given for the best animals that produced bristles instead of wool! The trade however could not be galvanised into life. The merino, steadfastly as it was befriended by the Parrys and others, deteriorated under the changed climatic conditions of its life; its wool lost its fine texture, and as it was not fitted for the production of mutton, the Royal favourite subsided into obscurity, to which doom it was helped by the increasing supply of fine foreign wool.

The encouragement the breed received was none the less creditable to the Society, because there is not the least doubt some of the best breeders of the day considered the maintenance of the stock an object of national importance. Nor was the experiment barren of beneficial consequences in another direction, for its introduction led the Society to turn its attention to the improvement of stock generally and with the best results. So high nevertheless was the opinion entertained of the breed for several years that at Lord

Somerville's sale in May, 1811, 228 merinos sold for no less than £9,210 5s. 6d.

Other Objects Encouraged.

Retracing our steps to the year 1787, we find the Society manifesting interest in the growth of mangold wurtzel. In the preceding year Sir Thos. Beavor, of Hethel, had obtained a few seeds from Paris, and the result of an experiment with them induced him to lay the facts before the Society, which warmly seconded his efforts, and in 1788 the first crop of mangold was grown in the western counties.

At the same time the Society was busy in introducing to notice improved implements, among these being Winter's drill machine, Treffry's harrow and drag, C. Gray's turnip transplanter, and an invention by J. C. Hornblower, of Bristol, for communicating motion at a distance. The cultivation of turnip-root cabbage, suggested by Sir Thomas Beavor, was encouraged about this period. The protection of turnips from the fly also engaged the serious attention of the Society, and it is said that the idea of rolling, as a precautionary measure, was first suggested in the neighbourhood of Bath. Some gipsies had encamped in a turnip field, the owner of which noticed that just at the spot trampled upon by the vagrants the best crop was produced. Rolling was certainly a much more useful plan than the strewing of the ground with elder branches then recommended, and

which is still followed by many cottagers, or the placing of putrid lobsters with mathematical regularity on the land, which was one of the desperate expedients suggested to keep off the destructive fly.

At the meeting in 1790 the title of the Society was altered to "The Bath and West of England Society," on account of its then well established character and the widely extended residences of its subscribers.

In 1795, among the premiums awarded was one to Mr. Jeanes, of Allhampton, for his "demonstrated skill in the cure of the rot in sheep," but the condition annexed to the gratuity was that the recipient should make "a full discovery of his medicine and mode of application," which he apparently failed to do, either from a conviction on further trial that he had been too hasty in his conclusions, or that, from selfish considerations, he deemed it better to keep the secret to himself, the former hypothesis being the more probable of the two.

The merits of the North Devon herd of cattle had by this time so deeply impressed the Society that in the introduction to this year's Journal special attention is called to it by the editor (Mr. Matthews), who succeeded Mr. Rack as secretary in 1787. A prize of ten guineas was awarded to the Rev. Wm. Quartly for the finest young bull, sire and dam of this favourite breed. Prizes for fat sheep, for rams, and for rams' and ewes' fleeces were also given.

The celebrated Duke of Bedford, who became president of the Society, was this year, for the first time, an exhibitor. Owing to the great scarcity at this time, the Society made special efforts to encourage the breeding of pigs and the growth of potatoes. They also petitioned Parliament in favour of a general Inclosure Act.

In 1796 the meeting was more numerous attended than ever, and honoured with the company of the Marquis of Lansdowne (the great grandfather of the present holder of the title), the Earls of Stafford, Peterborough and Galloway, Lord Somerville, and some of the best farmers and breeders in the kingdom.

The next year the Duke of Bedford attended, as well as the Marquis of Lansdowne and the Marquis of Bath, and that well-known writer on agricultural and other topics, Mr. Arthur Young. Among the bounties given was one of £10 10s. to Mr. Exter, of Pilton, Devon, for a well written essay on the comparative merits of "drilling and broad-cast sowing." New descriptions of drills, threshing and winnowing machines were also patronised, and some useful information obtained on the autumn cultivation of turnip and other root crops.

The following year we read, "Mr. Lazarus Cohen, of Exeter, presented a curious machine for reaping and mowing, by the use of which one man with great facility can do the work of three." This was esteemed, it is added, a very ingenious, practical invention, but not being completed was not entitled to any of the

Society's premiums. Had we in this invention of Cohen's the germ of our modern reaping and mowing machines? It would be interesting to know the fate of this labour-saving contrivance, as forty years only have elapsed since Enoch Ambler first put his machine for cutting grass and grain into operation in Montgomery County, New York.

In addition to its other objects, the Association began in 1799 to aid improvement in the growth of the choicer kind of fruit, which it continued to do for several years.

Mr. J. Brown in 1800 obtained a premium for the introduction of the horse hoe.

At the next gathering two names stand out conspicuously: Mr. T. Quartly, who received a prize of six guineas for introducing the double furrow-plough into a new district, and ploughing 60 acres with it; and Dr. Cogan, who was awarded a premium for a new dibbling machine.

The custom of giving farm labourers bounties for long and faithful services had been recently introduced, and among them Sarah Leonard is credited with two guineas for reaping 5 acres 11 perches of wheat.

Institution of the Bedfordian Medal.

The president of the Society, Francis, Duke of Bedford, an ardent promoter of agricultural improvement, died on the 2nd March, 1802. On the 22nd an extraordinary

meeting of the Bath Society was held, under the presidency of Mr. J. Billingsley, one of the Vice-Presidents, to give expression to their deep sense of the sudden loss sustained by the removal of his Grace. It was resolved to recommend that a gold medallion, value twenty guineas, should be annually offered as a premium for the greatest improvement in any subject connected with agriculture which shall be proposed by a committee annually appointed for the purpose. A premium of twenty-five guineas was also voted for the selected design. The honour thus instituted was for several years a much coveted distinction; indeed, it was regarded as the "blue ribbon" of the Society, and proved a great stimulus to genius; but considerable latitude seems to have been taken in its bestowal. Capt. Parry received it for his Arctic discoveries, the connection of which with agriculture is not easy to determine; so did Chantrey the sculptor, and the inventor of a life-preserver throwing stick. From a gold medal it became, with the drooping finances of the Society, one of silver, and about 1831, after two or three interregnums, it disappeared altogether from the Society's premiums. It will be interesting to the ladies to know that Miss Fanshaw obtained the medal in 1804 for presenting the best design for the Bedfordian die, the medal, we presume, being substituted for the before-mentioned premium of twenty-five guineas, because it is also recorded that Mr. Arthur Young obtained a

similar distinction for the best essay on the "Natures, Properties, and Application of Manures."

The successor to the Bedford Dukedom became also the next president of the Society, to which he presented a marble bust of the late Duke, still preserved in the Bath Royal Literary and Scientific Institution. The new Duke however retired from the presidential chair in 1805, though he continued for many years a subscriber to the funds, and was succeeded by Mr. (afterwards Sir) Benjamin Hobhouse. While on the subject of official changes, it will be convenient to note that in 1805 Mr. Bartley resigned the secretaryship, which he had held for five years, and which was accepted by Mr. Robert Ricardo.

Election of a Mohawk Chief.

The meeting of the Society in 1804 was rendered memorable by the presence of a distinguished chief of the Mohawk nation, with a name as long as it is unpronounceable. On his introduction he was described as "ardent in the pursuit of agricultural improvements" and desirous of adopting the best system of this "kingdom in his far-distant home." The enlightened barbarian was elected an honorary member of the Society, and his speech in returning thanks for the compliment is described as felicitous and practical. Every facility was afforded him by the Society to

become acquainted with bucolic matters, but whether the privilege he enjoyed here bore the fruit desired in his "far-distant home" is not recorded. This much however should be stated to his honour that during the British-American war of 1812, he stood, it is said, loyally by the English, and with his tribe rendered essential service to the Colonial authorities.

Progress of the Society.

The operations of the Society each year included a ploughing match in the summer, a meeting in November for general business, and the usual gathering in the middle of December, when the exhibition of stock and implements took place at the Society's yard in James's street, coupled with the reading of papers and the reports of the judges, &c., at Hetling House. The proceedings occupied three days, and included a public dinner.

Resuming our notice of the special objects encouraged by the Society, we find in 1802 that a premium of five guineas was given to Mr. B. Gray, jun., of Henstridge, for ploughing in a new district the greatest quantity of land with a pair of horses abreast, without a driver. A year or two later Mr. L. Tugwell, of Bath, was adjudged a piece of plate value ten guineas for exhibiting various valuable implements of agriculture, and for great general merit in the construction and exhibition of useful articles in various departments of mechanics for several years.

A butcher of Bath also received a premium for adopting the Italian method of killing cattle.

Of more importance was a proposal made by Sir John Coxe Hippisley to establish a chemical laboratory at the Society's house. Sir John presented a plan for the same, which was approved and 130 guineas were immediately subscribed, and on carrying the same into effect Dr. Parry generously offered to present his chemical apparatus to the Society, whose example in this respect was followed by Dr. Archer, a resident medical and chemical professor, and who likewise undertook the office of lecturer gratis. The object will be (it is explained) to deliver courses of popular lectures on the principles and application of chemistry to agriculture and rural affairs, and to analyse soils and other substances useful in those most essential of arts. In 1806, Mr. Billingsley received the Bedfordian gold medal for an essay on the cultivation of waste land; and the next year an ingenious machine for discharging water on fruit trees was awarded a bounty of £3 3s. A proposition was also made by the Society's editor, Mr. Matthews, to connect an agricultural college with the Society—similar to that established at a subsequent period at Cirencester, but the suggestion led to no practical result.

Two years later the Prince of Wales (afterwards George IV.) became patron of the Society as Duke of Cornwall, and following his example the lords lieu-

tenant of the western counties became vice-presidents. In the meantime Lord Somerville had been endeavouring to impress upon the Society and the minds of agriculturists generally "the imperious necessity of rendering "the country independent of foreign aid by raising those "great sinews of our naval strength, hemp and flax, "within the limits of the Empire." In 1813 the Bedfordian gold medal was awarded to the Rev. J. Willis, of Sopley, Hampshire, for an essay on the commutation of tithes; Messrs. Todd and James, of Bristol, exhibited a machine capable of detaching eight quarters of wheat per day by the power of one horse, which it was thought probable would supersede thrashing machines.

A resolution adopted this year directed that all cattle exhibited at the Society's meeting should be judged alive. By this means it was thought that much greater interest and consequently competition would be excited and great trouble saved to the judges. Dr. Wilkinson, a name intimately associated with many public undertakings in Bath, was the next year elected chemical professor in the place of Dr. Boyd, of whom it is said that he had left the kingdom.

Bedfordian medals were awarded to Dr. Cogan, as a testimony of high respect, and to Mr. King, statuary of Walcot, for a model of Mr. J. Billingsley, who died the previous year, after having been for 32 years a vice-president of the Society. At this time the Society

was making strenuous efforts to promote the cultivation of Fiorin grass. One year Sir J. Coxe Hippisley was awarded a premium of 20 guineas for its successful cultivation. Mr. W. Dickinson, M.P., and the Rev. W. B. Barter likewise obtained the like premiums for the culture of the same product at other times. In 1814 a premium of five guineas was awarded to the inventor of a windmill of ingenious construction.

The Marquis of Lansdowne, President.

Sir B. Hobhouse having filled the office of President for twelve years, resigned in 1817, and the Marquis of Lansdowne was appointed to the post, which he held for the long period of thirty years. Sir Benjamin had been a munificent supporter of the Society; on his inauguration the hon. baronet gave a donation of 100 guineas to the funds, and annually a subscription of 20 guineas as a prize for the encouragement of some object of utility. A bust of the late president was ordered, and the same was executed by Chantrey, who received the Bedfordian medal as a compliment to his artistic skill. This bust, like that of the Duke of Bedford, is preserved at the Literary Institution. The Marquis of Lansdowne on accepting the office of president also presented a hundred guineas to the Society; year after year he was a regular attendant at the meeting, contributing liberally to its funds, offering special prizes, and participating in its discussions.

Almost the last occasion when the noble Marquis was present he joined in a debate on the potato disease, which had recently manifested itself with such virulence as to destroy the crops. He doubted the various causes assigned for its origin, and as a large potato grower himself he recommended early planting and a liberal use of lime to the soil as the best preventive. Probably even at this late period we have not advanced very far beyond the opinion here expressed, either as to the origin of the disease or the most effectual method of guarding against it and minimising its effects. About the same time the Marquis offered £100 as premiums for improved deep draining, £50 for work done by the sub-soil plough and £50 for the best of any other mode. To the great regret of all Lord Lansdowne retired in consequence of his great age and infirmities in the year 1846. His lordship was then elected patron to the Society in succession to the Queen, who became patroness in 1839 and continued the Royal donation of 50 guineas annually given by George IV. and William IV. The Royal bounty ceased however simultaneously with her Majesty's withdrawal from the Society.

Concurrent Operations.

In 1817 the premiums for live stock were considerably increased, three prizes of £15, one of £20 and another of £30 being offered in the bull and steer classes. Prizes

were likewise given for horses employed in husbandry and one for stallions. The following year Dr. Wilkinson's eminent services received substantial recognition in the present of a piece of plate, value 20 guineas, and Sir T. Tyrwhit obtained the Bedfordian medal for experiments made by him in the most lofty parts of Dartmoor in the cultivation of flax. The next year the study of geology was encouraged, and a cabinet purchased for the exhibition of specimens. Mr. J. H. Hunt, of Compton, is recorded as receiving a gratuity of £5 for introducing on a large scale the cultivation of hops in Somerset. In 1820 books were opened to receive subscriptions from ladies for the encouragement in the western counties of poultry breeding and bee keeping, which we fear the fair did not respond to with alacrity, as we hear no more of the project. A reverend divine (Phelps) was, in the course of the following year, awarded a bounty of £5 for an improved cider press, and a rear-admiral (Bullen) obtained the Bedfordian medal on the next occasion for an improvement in the ball cock. Mr. Stothert exhibited two balancing drag shoes for wagons, which possessed great "merit" and obtained the thanks of the Society. In 1823 the indefatigable Dr. Wilkinson read a paper on the best means of preventing inundations in Bath, and the Society awarded him a silver medal (Bedford) for his labours.

The scheme for grafting the study of geology on to the operations of the Society was found to be imprac-

ticable, and in 1825 its fossil collections were ordered to be transferred to the Literary Institution. During this decade considerable attention was given by the Society to the fertilising properties of salt, with which many experiments were made and the results recorded. The manufacture of straw plait was also encouraged, and samples from time to time exhibited. In 1827 Sir Richard Hoare and other gentlemen contributed papers on planting, and Mr. Osborne on drainage. An animated discussion also took place on the subject of the Corn Laws.

The next year rewards offered by his Majesty, by the Duke of Somerset, and Sir B. Hobhouse, for the improvement of waste lands were bestowed, as well as others for the best cultivated farms, for new varieties and kinds of vegetable and fruit produce, and inventions in mechanics, chemistry and other useful arts. Among the recipients were Mr. W. Hill, of Combe Hay, for an essay on "Orchard Plantation," £5, and "Agricola" ten guineas for a treatise on the "Growth of Wheat."

The Journal of the Society (vol. xv.) was in 1829 published after an interval of 13 years. Two years subsequently the death of Sir B. Hobhouse is recorded, after a connection with the Society extending back to 1795, and that of Charles Phillott, who from its institution in 1777 was one of its vice-presidents.

Improvement of the Labourer.

The lamentable condition of the agricultural labourer could not fail to receive the consideration of the Society. During the first thirty years of the present century the state of poor Hodge declined from bad to worse. Wretchedly housed, badly paid and badly fed, he was driven by desperation to become a rick-burner or a poacher, or else a burden upon the rates. At the time to which we have now brought the annals of the Society pauperism appears to have been his normal condition, and it is not surprising that the Society was zealous in its efforts to provide a remedy for this dangerous state of things.

As far back as 1790 a prize was awarded to Mr. T. Davis, of Longleat, for plans of cottages, and in an explanatory letter he says, "Men of feeling will endeavour to improve the labourers' cottages from principle; those without feeling, if such men there are, will find it to their interest to do it."

In 1824 Sir J. C. Hippisley laid before the Society a sketch of cottages, combining "all the useful ingredients of economy and comfort," the cost of which was £25 for a single cottage, and £47 for a double cottage, at which figures modern improvers will doubtless give the sceptical shrug. The hon. baronet in pointing out the necessity for looking after the housing of the peasantry, declared that such was the miserable condition of many

of the cottages that it was a common practice for women in child-bed to bring their bedding to the lower floor. These palliatives, mild as they were, made little impression on the degradation of the cottagers. A great deal more was effected by means of the field garden or allotment system which came into operation, and which the Society strenuously fostered. The then bishop of the diocese was a great advocate of the plan, and put it to a practical test, his lordship being a prime mover in the establishment of the East Somerset Labourers' Friend Society, which gave prizes for garden produce and skilful tillage. The West of England Society rendered this organisation assistance in various ways, and its annual meetings were held simultaneously with those of the older association, which made their identification more complete. The late Captain Scobell, R.N., was a staunch promoter and practiser of the allotment system, and frequently brought the subject under the notice of the members.

In 1832 the Society, it is recorded, "caused to be "printed and widely circulated the very interesting "observations furnished by Capt. Scobell on the subject "of 'Field Gardens,' a subject which at the present time "deserves the attention of every individual who is "interested in the welfare of these suffering classes, of "the owners and occupiers of land, and the nation at "large." The gallant Captain found an able seconder in Mr. C. W. Hall, who farmed about 700 acres of his

own land at Westbury-on-Trym. Like his father before him, he followed out the allotment plan, and pointed out during one of the discussions with much force that the greatest benefit of the system arose from giving the labourer a sense of security—a hold on the soil, and a station in the civilised class of society, thus generating a strong tie to the higher classes, and a disposition to protect rather than attack property.

In 1830 the Bedford silver medal was granted to Mr. John Beak, of Southstoke, for having materially improved the condition of his labourers during the previous ten years by means of small allotments of land for their own cultivation. A gold medal was also offered by the Society to the renting farmer in any of the western counties who has contributed most, by the use of the like means, to the welfare of those dependent upon him, and thereby rendered them independent of any parochial relief. Mr. Hall declared that none of the labourers on his estate ever had a shilling from the parish. The gold medal was not claimed; but the hearty support given by the Society to the allotment movement was productive of great good, and adds another to its many claims on the public gratitude.

Nearly the last special prize given by the Society before its resuscitation was one of £5 in 1848, to Mr. C. E. Davis, for plans and estimates for the construction of labourers' cottages. So anxious indeed was the Association to improve the condition of the peasantry that it

was not above encouraging that useful branch of female labour, knitting. Thus at an earlier date than the year above given it is stated that Miss Spencer, mistress of the Charity School, Malmesbury, was awarded five guineas for instructing young females to knit, with a bounty of £4 for distribution among her pupils. Mrs. Thompson, of Cock-road school, also received a gratuity of five guineas for the like labours, and her pupils a present of £1.

An Enterprising Member.

Mr. Hall, whose name has occurred more than once in our narrative, seems to have been a clever man with a clear head and a warm heart. For several years he was the most prominent speaker at the annual gatherings, and a competitor in various departments.

In 1829 he submitted a motion for the meetings of the Society to be held alternately in Bath and Bristol, in consequence of the larger measure of aid it received in the latter city.

Dr. Parry gave a qualified support to the resolution, and asked whether it was right that the Society should appear in the form of a mendicant to those who for above half-a-century had benefited by its existence and exertions. The subject was ordered to stand over, and on the next occasion the proposition was rejected, owing to the praiseworthy liberality of the Corporation of Bath

and the Parliamentary representatives of the city, and the additions made to the list of members.

Mr. Hall stood by the Society though defeated in his object. He soon after submitted the model of an improved method of building labourers' cottages, with a plan for economising heat and fuel by means of a fireplace constructed on principles different from those in use.

Next he exhibited a contrivance for tying up cattle, and then announced a great chemical discovery made by Mr. Daniells, formerly a partner with Mr. Wilkins, clothier, of Twerton. This consisted of a new artificial manure, the principal ingredients of which were carbon and ammonia, and its stimulating effect upon certain crops was pronounced to be astonishing.

Several members tested the compound and reported against it. Mr. Hall still adhered to its fertilising properties and stated that he had tried 500 bushels of it with the best results. What became of the discovery we know not, but we hear next that its doughty advocate had caused by death a vacancy in the Society. We suspect that Mr. Hall would have liked the Bedfordian medal as a recognition of his labours, and that the thanks he received for his ingenious contrivances were a little disappointing, though the fact does not seem to have affected his cordial support of the Society.

Declining Days.

Notwithstanding that the operations of the Association were conducted year after year in accordance with the plan originally devised, signs of decay began to manifest themselves as far back as 1820, and the interest felt in it in the western counties went on from that period decreasing. Various causes combined to bring about the result. So great had been the improvements made in agriculture that many entertained the opinion that the objects which such societies sought to promote at their formation had been accomplished. Then there was the unpopularity of the farmers, who were held responsible for the scarcity and dearth of provisions, and who therefore were the last persons to be encouraged. Lastly, there was the competition at a later period of other societies, such as those held at Bruton and Frome.

Under the operation of these adverse forces the Bath and West of England Society shrank in dimensions. We have seen by what means it was invigorated in 1831-2; the expenditure was also curtailed by the discontinuance of premiums given for sheep shearing, and still later the secretary, Capt. Leigh Lye, voluntarily surrendered one half his salary. The house and yard in James's street were given up, and the exhibitions of the Society then took place in the cattle yard, Walcot street. The November meeting held regularly since the establishment of the Society was also abolished.

In 1840 £300 of stock was sold out to clear off debt, which sunk the invested capital to £700, and eight years later, in order further to reduce expenditure, it was resolved to relinquish Hetling House, which was done, and the books and other property of the Society were transferred to the Literary and Scientific Institution. During this era of declining fortune the Society struggled manfully to fulfil its mission. Invention was stimulated, agriculture improved.

In 1834 Mr. W. H. Higman, saddler, of Cheap street received a silver medal for an improved bit, and the Rev. W. Merrick, of Bath, sent the model of an improved window frame, the object of which was to enable servants to clean windows with safety to themselves.

Next year a member of the Society, through Capt. Scobell, offered a premium of £10 to the person who should materially improve cart, wagon, or plough harness.

In 1836 Mr. W. Miles, M.P., communicated important information relative to the fattening of cattle with potatoes, peas and meal.

The next year the death of Sir Richard Colt Hoare is chronicled, with the announcement that he became a member in 1794, and a Vice-President in 1802. Then our old friend Dr. Wilkinson submitted a fire escape, the simplicity of which excited the admiration of the meeting, and Mr. Thomas Fuller introduced to the notice of the meeting a new plan for wooden block paving.

In 1841 an interesting discussion, raised by Dr. Parry, took place on the relative merits of small and large farming. Leaping over a couple of years, and we find the Marquis of Lansdowne announcing that a farmer in Ireland had raised more than 100 tons of flax on three acres of land, by following the rules of a society similar to the Bath and West of England Association. The noble President's two prizes of £50 each for improved deep draining were both awarded to Mr. Hulbert, of Ford Farm, near Bradford-on-Avon.

In 1845 Daniel Tavener received a gratuity of £3 for raising a new variety of potato from seed. Lord Portman succeeded Lord Lansdowne as President in 1847. The following year Capt. Leigh Lye resigned the office of treasurer and secretary, which he had held for 30 years, and received two silver salvers and a purse of sovereigns in recognition of his long and valuable services. Mr. H. St. John Maule was appointed in his stead.

In 1849 Colonel Pinney offered a prize of £10 for the best essay on the "Dibbling of Mangold Wurtzel," which was carried off the year ensuing by Mr. Thos. Woolley, of Wilmington, near Bath.

The last show of the old society took place in 1852 in what was then known as Lansley's Riding School, Monmouth street; it was a very meagre affair and was followed by a dinner at the Greyhound Hotel, which has ceased to be.

The Great Revival.

While the Society was in this moribund state, or a mere shadow of its former self, it was endowed with a new life in the shape of a new constitution, which happily has given it a strength and influence far beyond what the wildest dreams of its early projectors could have imagined for it. For this salutary change it was indebted to Mr. T. D. Acland, a name no less honourably associated with the Oxford Local Examination movement, which has conferred as much benefit on education as the resuscitated Society has upon agriculture.

Mr. Acland in 1850 became a member of the association for the avowed purpose of propounding his scheme, which he did in a letter addressed to Sir Wm., then Mr. Miles, M.P. In this letter he expressed a desire that some steps should be taken to perpetuate and diffuse more widely in the western counties the benefit, which the Royal Agricultural Society confers on England at large, and of which a remarkable illustration had recently been furnished by its meeting at Exeter, in July, 1850. "In order," said Mr. Acland, "to reap the full benefit of the Exeter meeting, I think we require the combined action of a society holding its meetings in successive years at different places in the West, possessed of a sufficient income to give prizes for implements as well as for stock, and to distribute to its members printed transactions, containing digested reports of careful

"experiments ; in short to carry into every corner between "Dundry Hill and Dunkerry Beacon, and farther west, "too, I hope, if we can all pull together, the results "attained by *practice with science*."

Mr. Acland's proposal was cordially supported by Mr. Miles and other gentlemen, including Lord Portman, who used words which read now as prophetic. He said if they could make such a change in their mode of operations as to induce the great implement makers to come down annually amongst them, he felt persuaded that the youngest of its members would live to rejoice that they had been enabled to take part in setting afloat the proposed enlarged action of the Society.

A committee of seven members was appointed to consider and report upon the subject. Setting earnestly to work, the committee passed resolutions approving of Mr. Acland's recommendations, and suggested that they should be carried out through the medium of the existing Society.

Taunton was pointed out as a convenient place for holding the first exhibition under the new *régime* ; it was considered desirable that a council should be formed, consisting partly of the existing committee of superintendence of the Bath and West of England Society, and partly of other gentlemen residing in the different western counties ; and conjointly with Mr. H. St. John Maule, the secretary of the Society, Mr. (now Sir) T. Dyke Acland, and Mr. (now Sir) S. H. Northcote were

requested to act as honorary secretaries till the Society was thoroughly reconstructed.

Meetings were held at Bridgwater, Taunton and elsewhere in 1851 with the view of ascertaining the feeling of the agriculturists in the western counties; resolutions favourable to Mr. Acland's scheme were adopted; and at a meeting of the Devon Agricultural Society it was unanimously resolved that a migratory exhibition would be a great advantage to that Society and to the agriculture of Devon. Such being the case, a negotiation was opened between the provisional committee of the Bath and West of England Society and the committee of the Devon Agricultural Society to bring about a fusion of the two bodies, with a view to a combined and energetic course of action. The result was that the Devon Society became merged into the Bath and West of England Society; and the acts of the provisional committee having been sanctioned and adopted at an adjourned meeting at Bath, on the 11th of February, the Bath and West of England Society commenced its new and extended career of usefulness. Mr. H. St. John Maule retained his position as secretary to the Society under the new system, and he still continues the post as an honorary appointment, the actual duties of Secretary and Editor being discharged by Mr. Josiah Goodwin.

Migratory Meetings.

The first meeting under the new constitution was held at Taunton in 1852, Lord Portman being the president. The entries of stock numbered 238, and of implements upwards of 400—a success far beyond what was anticipated. The first volume of the new series of the Society's journal was also issued under the editorship of Mr. T. D. Acland. The next year Plymouth was the trysting place, with Sir T. D. Acland as president, when there were 488 head of live stock shown and about 450 implements. From the poultry show held under the direction and at the pecuniary risk of Mr. Jonathan Gray the Society derived the substantial benefit of £282 16s.

In 1854 the annual meeting was held at Bath ; president, Sir W. Miles, M.P., the ground being on the site of the present Lyncombe and Widcombe cemetery. Total number of live stock exhibited 587, implements 741. As the proceeds of the Bath exhibition of poultry, Mr. Jonathan Gray had the satisfaction of presenting £458 as a donation to the Society's funds. In conjunction with the meeting a fancy fair was held for the relief of the wives and families of those of our soldiers who were in the Crimea, at which £500 was taken, and a like sum was also collected at the entrance of the poultry show. The streets were lavishly decorated, and among

the events recorded were a dinner at the Assembly Rooms at which 500 sat down ; and a ball, also held at the Rooms, which was well attended. The admission on Wednesday numbered 1,464 ; on Thursday 8,775 ; and Friday 12,000 (the latter including 7,000 children).

In 1855 the annual meeting was at Tiverton ; president, the Earl Fortescue. The entries of live stock 558, and of implements 1,107.

The next (1856) was at Yeovil ; president, Mr. C. A. Moody, M.P. Of live stock there were 519 head ; the implements were 1,038 in number.

In 1857 Newton Abbot was the place selected ; president, Lord Courtenay (now Earl of Devon). The number of live stock exhibited was 682 ; of implements, 1,106.

Cardiff received the Society in 1858, Lord Courtenay being president for the second time. Of live stock there were 686 entries ; implements, &c., 960. This was the last occasion at which prizes for agricultural implements were awarded, and ever since their discontinuance the implement department has increased in importance and extent.

In 1859 the annual meeting was at Barnstaple ; president, Mr. J. Sillifant, of Coome. Number of live stock exhibited, 599 ; implements, 1,127. A new feature at this meeting was the Arts Department, which owes its existence to a suggestion of Mr. T. Dyke Acland, and by whom the details were worked out. His Royal Highness the Prince Consort was an exhibitor of stock, and

enrolled his name as an annual subscribing member of the Society.

The annual meeting in 1860 was at Dorchester; president, Earl Rivers. The number of cattle shown was 599, and of implements 1,453, including 29 machines in motion.

In 1861 the annual meeting was at Truro; president, Mr. J. W. Buller, M.P. Number of live stock exhibited, 499; of implements, 1,121.

The annual meeting in 1862 was at Wells; president, Mr. T. Dyke Acland, D.C.L. Number of live stock exhibited, 419; of implements, 1,182.

At Exeter, which was visited in the following year, open judging was first adopted. The Marquis of Bath was president. The stock and implements exhibited numbered respectively 419 and 1,813.

The next meeting, held at Bristol, was still more successful. The entries for stock were 545, and of implements, 2,985. Earl Fortescue was president. A fact of some interest was the conferring on the Prince of Wales the distinction of patron of the Society.

At Hereford, in 1865, Lord Taunton was president, when there were 525 entries of live stock and 1,500 of implements.

The Society met at Salisbury in 1866 and 1867, in consequence of the prevalence of the cattle plague in the former year preventing the exhibition of stock. Lord Portsmouth and Mr. Tremayne held the presidency.

The plague in 1867 caused the exclusion of horned cattle, but with this drawback the total entries of stock were 287, and of implements 1,850.

Sir J. T. B. Duckworth, Bart., was president in 1868, when the place of meeting was Falmouth. Stock entered, 292; implements, 1,240. At the general meeting it was resolved to amalgamate the Society with the Southern Counties Association, which enabled the combined organisations to embrace the whole area of England from a line drawn through London.

In 1869 the Society assembled at Southampton, with Earl Carnarvon as president. There were 581 entries of stock and about 3,000 of implements.

Taunton was again chosen as the meeting place for 1870, Sir Stafford Northcote being president. The progress made in the interval between the two visits will be seen by the following figures:—There were 175 exhibitors of implements and machinery, and 3,250 articles were classified and described in the catalogues. The entries of live stock were 520. On the first occasion there were only 49 exhibitors of implements, and 486 articles were catalogued, while the stock was 238.

In 1871, at Guildford, the Earl of Cork president, the entries of stock were 536, and 3,512 of implements.

Dorchester was visited in 1872, the Duke of Marlborough being president. The stock entered reached 673, and the implements 2,443.

Plymouth received the Society in 1873, and the Earl of

Mount Edgecumbe was president. The entries of stock were 721 in number, and of implements 1,953.

The meeting next year at Bristol (1874), with Sir Massey Lopes as president, was the most successful on record. The entries of stock numbered 740, and of implements 4,100. The total number of admissions to the Show was no less than 110,000.

At Croydon, in 1875, Mr. R. Benyon, M.P., was president. There were 806 entries of stock, 80 of machinery in motion, and of implements 3,040. The funded capital of the Society which in 1863 stood at £2,068, was reported to have grown to £10,000.

In 1876 the Society accepted a second invitation from Hereford, when the Earl of Ducie was president. There were 723 entries of stock, and nearly three miles of shedding were occupied by the implements, 3,200 in number. The total number of admissions was 49,060.

The Centenary Meeting held in Bath in 1877 was presided over by the Marquis of Lansdowne. The stock entries were 816, and implements 4,200, which included 106 special departments of machinery in motion. The total number of admissions was 74,475, and the receipts amounted to £5,837.

General Progress.

The foregoing statistics may, perhaps, only attract those who are interested in the career of the Bath and

West of England Society. For the gratification of a wider range of readers it may be desirable to add a few facts illustrative of the general progress of agriculture during the past century. Thus Mr. Caird is of opinion that the average produce of wheat per acre in twenty-six of the thirty-two counties of England visited by him, is $26\frac{2}{3}$ bushels, or 14 per cent. higher than it was estimated in the same counties by Arthur Young. And were the country at large as well cultivated as particular farms, the present average, it is computed, would be increased by at least eight bushels per acre. A great impetus to the improvement recorded was the consolidation of small farms into larger holdings, and the letting of them to tenants who possessed most energy and substance. The passing of more than 3,000 Enclosure Bills in the reign of George III., as against a gross total of 244 previous enactments, shows how briskly the cultivation of new land proceeded.

The rapid increase in the population has no doubt largely promoted agricultural progress, but as the area of the country could not be increased, land has in consequence risen in value. So much is this the case that whereas the average price of wheat for the five years preceding 1872 was £2 15s. per quarter, or £2 7s. 6d. less than the five years preceding 1815, the rent of land is much higher now than it was then. Thorough draining and deep ploughing introduced during the last forty years have greatly increased the productiveness of the

soil, and been the parent of many other salutary changes. Ground bones began to be used as a manure for turnips early in the present century in the eastern counties, and thence spread rapidly over England. In 1841 guano was imported into Great Britain, and about the same time superphosphate of lime began to be used.

Though the persistent attempts made by the late William Cobbett to introduce maize or Indian corn as one of our regular crops ended in failure, other experiments of a kindred character, have proved successful, and to these we owe the introduction of Italian rye-grass, winter beans, white Belgian carrot, sugar beet, and alsike clover, which are now successfully cultivated.

As an illustration of the more enlarged views which govern farm management we may quote the following from a paper by Mr. Darley on the Farming of Dorset. A quarter of a century ago the Dorset men (he says) had well nigh exhausted their enterprise in breaking up heath wastes and sheep downs but had not then adopted the steam plough wherewith to cultivate them. They applied artificial manures almost on as large a scale then as now, but were only just then learning the all-important lesson that the best and most profitable method of manuring land and raising its fertility is to place oil cake and corn into the mouths of sheep and horned cattle. The sheep flocks have not largely increased in quantity but most materially improved in quality. The herds of horned stock have advanced 50

per cent. at least both in quantity and quality, for where twenty years ago on very many tillage farms straw was a nuisance to be burnt or rotted in ricks, or wheat spread on the surface of young clover, young cattle are now-a-days very generally purchased to consume it with oil cake in winter, which has added very considerably to the riches of the dung heap, and the virtues of farm yard manure applied to the field. The same principles of alternate husbandry and the interspersion of straw crops with root produce and green crops were equally respected formerly as at the present period, but the now prevalent custom of planting the stubble, after being cleaned in autumn, with vetches or trifolium, or some other green crop to be consumed in spring has been largely productive in increasing food for stock, which, when expended in the right way, with bountiful supplies of auxiliary feeding stuffs, is calculated to be a more consummate enricher to land than any system that can possibly be devised.

Improvement of Stock.

Our more important breeds of live stock underwent an extraordinary change through the genius of Bakewell, who perfected a new race of sheep, the well-known Leicesters, as well as improved the long-horned cattle, then the prevailing breed in the Midland counties of England. These, long since eclipsed, have now been

entirely superseded by the shorthorn or Durham breed. In 1872 the results of 44 sales of 1,922 head of this stock gave a general average of £58 9s. 8d. each; 46 sales, embracing 1,929 animals, in 1873, yielded an average of £58 16s. 4d.; forty, belonging to the Duke of Devonshire at Holker, realised nearly £384 a piece, while twenty-seven from Mr. Cheney's herd averaged not less than £419 each. At the New York Mills sale in 1873, eleven Duchess cows and heifers yielded an average of £4,522 14s. 2d. each; Lord Bective gave £7,000 for one cow, and Lord Skelmersdale £6,120 for another. The whole of these high-priced animals belonged to the same shorthorn blood, and traced their descent from the herd propagated with so much care by Mr. Thomas Bates, who died in 1849. Another proof of the keen competition in the improving of stock in the Colonies as well as at home is furnished by the fact that a cargo, including forty shorthorn bulls and heifers, with choice specimens of the Cotswold sheep and Berkshire pigs, taken out by Mr. G. Cochrane, of Hillhurst, Canada, cost him, it is said, £15,000. The result of these labours of Transatlantic breeders is seen in the purchase, as above shown, of stock for this country, and American beef and mutton have also become new articles of commerce. The fattening of animals at home and abroad is now conducted on more scientific principles, and with the best results both to the farmer and the consumer. It is true both have been punished

by the murrain which was introduced by, it is supposed, foreign cattle in 1841, and has prevailed ever since in greater or less degree, being particularly virulent in 1871 and 1872. Pleuro-pneumonia followed soon after, and in 1856 came the rinderpest, which, originating among the vast herds of the Russian steppes, travelled westward over Europe, and nothing but the stringent provisions of the Contagious Diseases (Animals) Act keep the country free from this ever impending epidemic.

Mechanical Aids.

But the labour of agriculture has been as already hinted greatly alleviated, and its cost curtailed by the means of improved implements and machines. The demand for these has increased so enormously that the manufacture of them is now a most important and rapidly-increasing branch of national industry. Small's swing plough and Meikle's thrashing machine were brought into general use towards the close of the last century. The steam engine, as an auxiliary of thrashing was first demonstrated in East Lothian by Mr. Aitchison, of Drumore, in 1803. Steam power has also been applied to the cultivation of the soil, and with the improvement latterly effected in the machinery is likely to be generally adopted. Reaping machines are in common use in all well cultivated districts, and

among the latest novelties is a contrivance for binding as well as cutting the corn, which has long been considered a desideratum. So in haymaking these labour-saving inventions play an equally prominent part. With a mower, tedder and rake a man and pair of horses can do the work of ten scythemen, and another man and horse can toss, turn, and draw into windrows as much grass as could be overtaken in the same time by fifteen people. Then there are improved ploughs, scarifiers, grubbers, harrows, field rollers, land pressers, sowing implements, manure distributors, &c., of the making of which and the like of which there is no end. But one and all tend to improve and economise husbandry, and it is in the employment of these aids that the farmer must seek for resources to enable him to compete with the increasing cost of land and labour.

Machinery at the Centennial Show.

Mr. J. Darby, describing in the last report of the Bath and West of England Society the implements and agricultural machinery at the Centennial Show, says the display was truly magnificent. The almost interminable lines of shedding contained underneath them so many interesting devices of mechanical genius and labour-saving appliances, that the footsteps of visitors were inclined to linger longer in investigating their striking features. There was, in very truth, an *embarras*

de richesses in the entire department, and statistics will show that it was on a scale of magnitude never previously approached. At Hereford, in 1876, there were 79 separate compartments of special shedding for machinery in motion, and at Bristol there were only 59, while at Bath these were extended to 106. The increase in the total number of exhibitors was also in equal proportion, for at Hereford they numbered about 200, but at Bath they were upwards of 300. The growth of the Implement Department at our great Agricultural Shows can only be attributed to two causes—namely, the increasing dependence of modern farming on labour-saving machinery, and the studious endeavours of our mechanics and agricultural engineers to keep alive the spirit of invention, and bring to perfection every device calculated to relieve husbandmen of toil. Only by reviewing their services in the past can we become duly sensible of the magnitude of the work in which they are engaged, and of what may be expected of them in the future. They scheme, try experiments, and ponder over many a wearisome task in secret, encountering numerous disappointments and failures; but a noble object gives them patience and fortitude, and makes them regardless of toil. This is to accomplish something truly serviceable in their day and generation, worthy of being held in remembrance by posterity, and of securing fame and the gratitude of millions. Our engineers in the past half-century have, indeed, run a brilliant career, and the

transformations effected by them in almost every department of agricultural labour are truly marvellous. The bare record of what they have accomplished would fill many pages ; but a humbler task is mine, although one of scarcely less interest—namely, to point out what they are doing now, and the directions their enterprise is pursuing in rendering aid to the British farmer, as proved by their exhibits at this Centennial Show.

The exhibition of steam-engines was just as striking as ever, and most of the leading firms who manufacture them displayed their choicest specimens. There were engines for steam cultivation by Messrs. J. Fowler and Co., J. and F. Howard, Barford and Perkins, Aveling and Porter, W. Tasker and Sons, &c. ; and others for threshing and general purposes by Messrs. Clayton and Skuttleworth, Ruston and Proctor, Hornsby and Son, Brown and May, Roby and Co., Garrett and Son, Tuxford and Sons, E. R. and F. Turner, the Reading Iron Works, and many others. Three or four engines at this Show were entirely new, while others had improved features recently embodied. Thus Messrs. Marshall, Sons and Co. exhibited an 8-horse power portable engine, fitted with their new automatic expansion governor to act direct on the side-valve, and regulate the admission of steam in proportion to the requirements of the engine, thus dispensing altogether with the throttle-valve. Messrs. P. and H. P. Gibbons, Wantage, showed three new steam-engines of different sizes,

formed after quite an original and novel type. Mr. William Box, Uffington, another Berks engineer, had a traction-engine of 8-horse power, mounted on springs, which moved about very freely in the Showyard. In the features it embodied, the power is communicated to driving-wheels by outside connecting-rods from crank-discs on either end of a counter-shaft placed underneath the boiler. The entire gearing is neatly cased-in, away from the travelling-wheels. Messrs. Tuxford and Sons exhibited an 8-horse power portable engine, to show the extent to which they can economise fuel by their new expansive valve-pressure. This particular engine has been constructed to consume only 4 cwt. of coal per day when in full working. Mr. F. W. Turner, St. Albans, exhibited four steam-engines, which were entered as new implements. Turner's Semi-portable $2\frac{1}{2}$ -horse power has all the working parts of steel, and the crank, rods, and other parts are all enclosed. Turner's Single-cylinder and Double-cylinder Reversing Engines, the first $2\frac{1}{2}$ -horse, the other 5-horse power, are capable of being run at great velocity. Turner's "Silent" Expansive Engine, 6-horse power, has two steam-jacketed cylinders; one piston is balanced by the other, and the exhibitor claims that it will work expansively to any extent required. Messrs. Ransome, Sims and Head exhibited their new 6-Horse Power Locomotive Engine, designed and constructed from entirely new patterns, and capable of effecting steam-cultivation, threshing,

and every other kind of work required on a farm, including drawing about the machinery. An improved feature embodied is in the steerage, which is conducted from the foot-plate, and all the appliances for starting and reversing the engine and putting on the brake are placed close together.

The Patent Steam-blast Tube-cleaner, of Messrs. Brown and May's design, is probably one of the most striking improved features with which the ordinary steam-engine has recently been invested. Mr. E. J. Hindley, of Bourton, Dorset, has adapted his well-known 3-Horse Power Vertical Steam-Engine for hoisting purposes, and the hoisting apparatus was exhibited in motion.

Messrs. Brown and May also exhibited a new hoist in connection with one of their 4-horse portable engines, which is designed especially for builders, contractors and others, enabling them to hoist building material and drive a saw-bench or mortar-mill at one and the same time. With an 8-horse engine, working at 25 lbs. pressure, it is stated the hoist will raise 10 cwt. to the height of 60 feet in 45 seconds, and at 35 lbs. it will lift 30 cwt. 60 feet high in as many seconds. The brake is so effective that it will hold 2 tons in suspension at any height without fear of its running down. It will also be found very useful for drawing timber together up to the saw-mill in a forest clearing, and thus saving the expense of horses, the utility of which must be obvious

to every one. These hoists may be attached to all engines from 4-horse power upwards, and can be used for driving saw-benches, mortar-mills, &c., in the ordinary way at the same time it is hoisting up. Messrs. Hayward, Tyler and Co. showed the action of a new implement in this department, namely, Cope and Maxwell's Patent Self-Governing Pumping-Engine, which is considered especially applicable to sewage. Mr. Alfred Collins, of Stalbridge, Dorset, displayed the principle of working of an entirely new cheese-making and warming apparatus, by which the heat may be regulated to any degree of temperature, and communicated, if required, to the cheese-room above the dairy. Hall's new Patent Stone-Breaker on wheels, with screening apparatus, is another recent addition to our machinery which never previously had been exhibited. Several Stacking-Machines were shown in this department, and amongst them that of Messrs. Reeves and Son, Westbury, which is an old favourite with many farmers, on account of its deep sides allowing the implement to be used in windy weather ; but the improved principle of raising and lowering the trough has been recently applied, and, as this seems an excellent feature, it is perhaps worthy of special mention.

Summary of Advantages.

The late Mr. Pusey a few years since thus summarised the advantages derived from the improved agricultural implements then in vogue. Looking (he said) through the successive stages of management, and seeing that the owner of a stock farm is enabled in the preparation of his land by using lighter ploughs to cast off one horse in three, and by adopting other simple tools to dispense altogether with a great part of his ploughing; that in the culture of crops by the various drills horse labour can be partly reduced, the seed otherwise wanted partly saved, or the use of manures greatly economised, while the horse hoe replaces the hoe at one half the expense; that in harvest the American reapers can effect thirty men's work, whilst the Scotch cart replaces the old English waggon with exactly half the number of horses; that in preparing corn for man's food the steam thrashing machine saves two-thirds of our former expense, and in preparing food for stock, the turnip cutter at an outlay of 1s. adds 8s. a head in one winter to the value of sheep; lastly, that in the indispensable but costly operation of draining the materials have been reduced from 80s. to 15s.—to one fifth namely of their former cost—it seems to be proved that the efforts of agricultural mechanists have been so far successful as in all these main branches of farming labour taken together to effect a saving on outgoing of little less than one half.

Future Prospects.

Great as have been the strides made by farming in the past, through the agency of the means we have enumerated, its onward march is likely to be accelerated rather than retarded in the future. The more education is diffused and its curriculum extended or better adapted to meet the requirements of the day, the larger measure of intelligence shall we have brought to bear on agricultural pursuits, and with it a more general development of what is called scientific farming. There is no reason why we should not have county schools especially devoted to the education of yeomen's sons, who may then start in life equipped with that technical knowledge which is considered so essential for the artisans of our towns. Indeed every farmer should be something of a chemist, able himself to test in the laboratory the constituents of soil and the ingredients of the artificial manures upon which he is so largely dependent, without having recourse to a chemist or to some society of which he may be a member. With this knowledge he would be safeguarded from error on the one hand and from being imposed upon on the other, and the enlargement of mind it would secure would enable him the more promptly to appreciate and apply any mechanical inventions calculated to improve or expedite the work of the farm.

It is indeed to this higher mental culture of the

agriculturist that we must look quite as much as to machinery to enable him to hold his own in the great struggle for existence. When this standard of intelligence has been attained, not as an exception but the rule, one-sided agreements between landlords and tenants, and the sore questions to which the over preservation of game give birth, will not be long without a solution. Knowledge will be found to be a power to whose reasoning and expostulations wealth will not be able to turn a deaf ear; and combined with the experience which the practical agriculturist obtains, it will facilitate likewise the solution of that tantalising problem the disposal of the sewage of our towns, in which will be found the cheapest and most efficacious regenerator of exhausted soils and a source of never failing fertility. With this auxiliary at ready command, and proper storage for water to counteract the effects of seasons of drought, in addition to those mechanical aids which private enterprise are constantly placing at his disposal, the agriculturist of the future will be able to hold his own despite any fluctuations in the labour market or the rivalry of foreign competition.

Conclusion.

In reading the operations of the Bath and West of England Society as detailed in the preceding pages, everyone will, we think, be struck with the multitude of things it has encouraged during its career. Some of these

may evoke a smile on account of their triviality apparently, but it shows that the Society was animated by a liberal spirit, that it preferred taking a hopeful view of every suggested improvement and new invention rather than that genius should be neglected or merit go unrewarded. The objects it has promoted are by no means exhausted by the list we have given ; they are simply quoted as illustrations of the numerous departments in which the influence of the Society was felt. The ingenious throughout the West of England regarded the Association as a friend, ever ready to extend the helping hand to all productions calculated to be useful, whether in agriculture, commerce, or mechanics, mentally or socially ; and when we remember that it attained, under its original constitution, its greatest success at the period when England was shut out from the Continent, and the necessity for fostering home industries of every description was a matter of supreme importance, we shall probably be the more inclined to look with a kindly eye upon an institution that was sustained by so much patriotic ardour during a momentous crisis of the nation's history. Neither should we overlook the great advantage derived from year to year by the reading of papers on agricultural and other topics, and the discussions, often animated, which ensued thereon, as well as by the publication of the Society's Journal, which gave cohesion and influence to the Association and identified it with the literature of the age. In this way it became

an educational centre, from which much valuable information was diffused, prejudices were removed, experiments suggested, and the results reported and reviewed. Indeed, the more one knows what the Society has accomplished, both directly and indirectly, for the benefit of the community, the deeper must be the feeling of gratitude to the great and good men who founded it, and their successors who conducted its affairs generation after generation ; the greater also will be the satisfaction that it is still increasing in prosperity as it is in usefulness, an opinion which a visit to its show ground will abundantly confirm. Therein we see, as it were, the harvest which has been reaped, and is being reaped annually, from the little seed sown by Edmund Rack and his associates a century ago, and as we survey the past and present position of the Society we cannot do better than couch our good wishes for it in the future under the time-honoured motto—

GOD SPEED THE PLOUGH!

WILLIAM LEWIS, "The Bath Herald" Office, 12, North Gate, Bath.

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